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Residential Area Clean-up Issues

At mining sites throughout Region 8, people currently live on top of Superfund sites, most having purchased their homes with knowledge of the presence of the mining wastes. Their residences were built on top of old mine tailings or windblown dust from the tailings piles, flue dust piles, or smelter waste piles has accumulated on their property. In other cases homes have been built on floodplains which have been contaminated from decades of discharging mining wastes into a stream. The contaminants of concern are generally lead and arsenic. However mercury has also been found in significant quantities in the soil at some sites.

Clean-up work has been completed as a removal action at one Region 8 site, Walkerville, Mt., where the yards around 23 homes were excavated to 18 inches and backfilled with clean soil and resodded. All other sites where residential clean up is likely are in the planning stages. The first ROD containing residential cleanup requirements was issued three years ago at the Smuggler Mountain site, in Aspen, Colorado, but it has become embroiled in controversy and the remedy is now being modified. The first phase of remedial action is now scheduled for summer of 1990, with residential area cleanup in 1991.

The existence of residents on the sites presents some difficult legal, technical, and community relations issues. The Smuggler site is a good case study.

Landowner liability. There are hundreds of small residential property owners, who do not fit the definition of innocent landowner, but who nevertheless are not responsible for contamination at the site. They have not been named as PRPs but as owners could be considered to be. This has resulted in a severe financial hardship of these people who cannot sell their homes or refinance. Mortgage companies have not been willing to take on this risk. The potential liability of the residents extends to the rights of named PRPs to take a contribution action against them. The consistent theme heard is that their lives are "on hold."

Region 8 has proposed that these residents be offered the opportunity to sign a special consent decree which would provide them contribution protection and a covenant not to sue in exchange for access to conduct the remedy, a requirement they follow any institutional contrcls developed, put a notice in their deed, and notify EPA when the property is sold. In addition the Region is proposing to issue a letter to all homeowners after the remedy is complete that would state that any future owners would not likely be pursued. This verges on a no action assurance which OECM policy does not allow except in certain situations. The Region is also proposing that no

reopeners be included in the settlement. Headquarters approval of these proposals is required. These actions would allow new buyers to obtain mortgages and current residents to refinance.

Institutional controls. Because the remedy likely to be selected will not result in all the wastes to be removed, institutional controls will become an integral part of the remedy. Because the county is a PRP, the county has agreed to develop a program to insure the integrity of the cap to be placed around the homes.

EPA is currently negotiating the substance of the controls, which will likely require permits for construction activities, requirements for raised gardening beds, inspection programs, and variance procedures.

Technical considerations. Cleanup work around occupied homes creates some unique issues. There are health and safety issues to be considered during remedial action with heavy equipment and blowing dust. In an arid area people are concerned about the loss of mature trees. Each of the hundreds of properties will likely have to be sampled to determine if each needs to be remedied. Property-specific designs are essential to return the property close to the original. The depth of excavation has been a continual issue. A repository for the excavated material needs to be found.

Region 8 is proposing a voluntary temporary relocation program to be handled by FEMA, a tree-saving effort, testing of individual properties, property specific designs to be completed with the input of each property-owner, a repository to be established on county property and maintained by the county.

Community relations. With hundreds of property owners impacted in a small community, extensive efforts have been required. Most residents have not recognized the health risks involved and have wanted EPA to pack its bags and leave town. Many question EPA's motives, priorities, and the expense of the job. Things seems to be slowly turning around.

The Region has initiated an extensive community outreach program and issues management effort. An issues management company out of Aspen was hired to describe the cultural and social conditions of the community and to help EPA develop an action plan sensitive to those conditions. Issues have been identified, communication patterns described, and the Region is now developing ways to be responsive to those issues. Report entitled "Our Lives Are On Hold" should be available by the end of January.

Contact: Barry Levene, Region 8
FTS: 330-1520

Bunker Hill - Residential Response

Site Overview

- 100 years mining and lead smelting
- 21 square miles - four towns
- Smelter complex
- Residential areas - 1200 residences
- Soil contamination - lead, and other metals--surface and subsurface
- Epidemiological studies - elevated blood lead - soil/dust link

Site Approach

- Split RI/FS
  - State lead - populated areas
  - PRP lead non-populated areas
- Intensive community relations
  - 100+ public meetings since 1985
  - Local Task Force
  - Full time local staff-health department
  - Field office
- Intervention program
  - Yearly blood lead screening
  - Followup by health department for high lead children
  - Public education efforts
  - ATSDR funded
- Residential Sampling
  - yard by yard soil sampling, confidential data
  - 90-95%--exceed 1000 ppm lead (85% exceed 1500 ppm)
  - Data base development - sampling results, owner/renter identification
- 1986 Removal Action
  - Soil removal/replacement at 17 parks/playgrounds, road shoulders
  - Local involvement

Residential Response

- 1989 Removal
  - 79 residences, 2 apartments, 1 day care center
  - Children under 4, pregnant women
  - Cleanup level - 1000ppm lead
  - 6 inch to 1 foot depth, clean fill
  - $2.5 million cost (construction $19,000/house)
  - Machine and hand excavation
  - Owner involvement
    - Location of soil/sod/gravel backfill
    - Garden replacement - 2 foot depth, raised bed
    - Trees/shrubs - excavate around, transplant or replace

Access

- Signed owner/renter access agreements, individually negotiated
- EPA Commitments
- Property condition documented
- Tailoring to individual properties
- Maintenance

- videotape property before cleanup – for restoration
- 6" to 1' depth – EPA to pay for extra depth

Enforcement Issues
- PRP alternative proposal - give prp seeds grass seed, sprinklers, hoses
- No PRP opportunity to do 1989 work

House Dust
- Clean or replace carpets/upholstery
- Timing of response action
- Cleaning effectiveness study - industrial cleaning, destructive sampling

Continuing Cleanup
- 1990 removal
- 1991 ROD
- Phased implementation
- Enforcement

Institutional Controls

Issues - Remaining subsurface contamination
Properties not remediated
Land use changes

Components
- Local ordinances
  - Building permit analogy - clean soil barrier disturbance
- Deed notices/restrictions
- Trust Fund
- Ongoing disposal capacity

EPA 910/9-89-348

United States
Environmental Protection
Agency

Region 10
1200 Sixth Avenue
Seattle WA 98101

Alaska
Idaho
Oregon
Washington

Superfund

July 1989

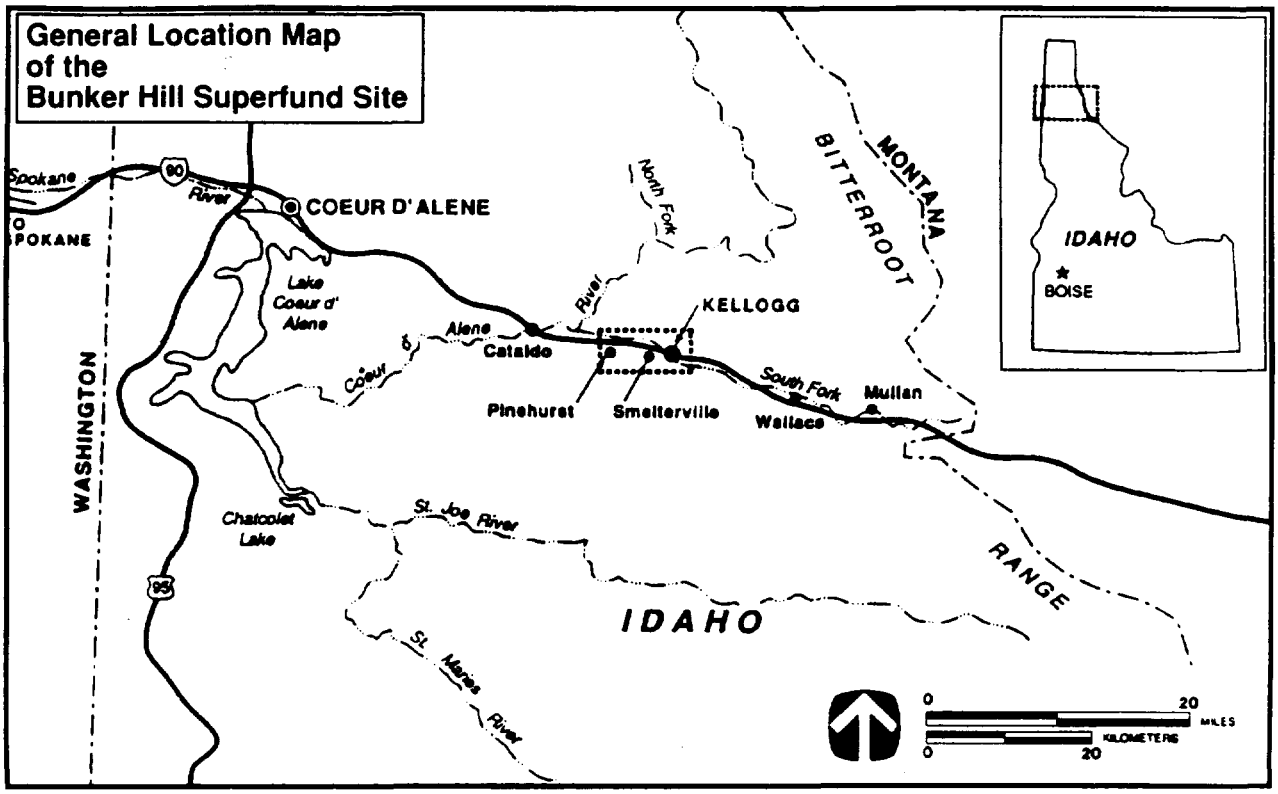
EPA

The Bunker Hill Superfund Project:

A Brief Overview

The Bunker Hill Superfund Project

One of the oldest Superfund sites in the nation, the Bunker Hill project is also one of the most complex. The site covers 21 square miles, affects three incorporated communities, and approximately 5,000 people. Lead contamination is widespread in the soils and water.



The Bunker Hill Superfund Project is one of the largest cleanups being undertaken by the U.S. Environmental Protection Agency in Region 10. This brochure is designed to give you a quick overview of the history of the site, work that has gone on since May 1985, and the work planned for the summer of 1989.

This Document Produced by:

The U.S. Environmental Protection Agency
in cooperation with
The Idaho Department of Health and Welfare
and
The Panhandle Health District

The Bunker Hill Mine Complex

The Bunker Hill Superfund site lies along I-90 in the Silver Valley area in northern Idaho. Three towns. Pinehurst. Smelterville and Kellogg. are located within the site boundaries along with several other unincorporated communities. Mining in the area began in the late 1800's and smelting operations followed.

The Bunker Hill Smelter & Central Impoundment Area

Lead Smelter production 1917-1981
Zinc Smelter production 1928-1981

These smelters produced lead. zinc, cadmium. silver. gold and alloys of these heavy metals. Other plants in the complex produced sulfuric acid. zinc oxide and phosphate fertilizers. In 1928. the Bunker Hill Company constructed a dike to prevent tailings from washing into the South Fork of the Coeur d'Alene River. Today this area is called the Central Impoundment Area or CIA.

The Zinc Plant

Bunker Hill:

The Problem:

Lead contamination is widespread due to both air emissions and tailings deposits. Air emissions from the smelter spread heavy metals, particularly lead, over the surrounding area. Levels of contamination increased dramatically during 1973-1974, when the smelter discharged about 20 years worth of emissions onto the area compared to previous levels.

The tailings left over from the milling processes at Bunker Hill and other area mines have contributed to metals contamination throughout the valley. Natural river action has spread tailings throughout the valley floor. Concerns over the health effects from this widespread contamination lead to further investigations to determine the extent of the problem.

Health Investigations: Past & Present

Ingestion of lead can lead to severe health impacts, particularly in small children and pregnant women. High levels of lead in the body can cause brain and nervous system damage in children, birth defects and developmental impairment in fetuses, and chronic kidney and cardiovascular system damage in adults. But even low levels of lead in the body can cause subtle health problems.

In 1974, a seriously ill child was brought to a doctor in Coeur d'Alene. Testing showed high levels of lead in the child's blood. Because lead can cause severe health problems, the doctor requested the Panhandle Health District investigate conditions in the child's home. Samples taken indicated the child was exposed to elevated lead levels in the soils, the dust and the air in the child's home and yard.

With the discovery of high levels of lead in the valley, the Idaho Department of Health and Welfare (IDHW), Centers for Disease Control (CDC), and the Panhandle Health District immediately began testing all children in the valley for elevated blood lead. This large-scale epidemiological study showed a large number of children had blood lead levels above 40 µg/dl (micrograms of lead per deciliter of blood), the level of concern at that time. A epidemiological study is designed to determine how widespread a particular disease or health problem is throughout the community.

Some early efforts by the Bunker Hill Company to protect people from further environmental contamination included buying property and relocating families in Government Gulch and Deadwood Gulch to other parts of the community. They also provided materials for a voluntary yard cleanup program.

In 1974-1975 as part of the epidemiological study, samples were taken from soil, air, vegetation, homegrown vegetables, house dust and house paint to determine the extent of lead contamination. Study results showed the need to reduce the public's, especially children's, exposure to lead. The Panhandle Health District began to develop the first of several education and intervention programs for preventing further ingestion of lead.

In 1983, another epidemiological study was performed about 18 months after the smelter closed down. At that time, about 25% of the children in the Valley still had blood lead levels above 25 µg/dl which is the current level of concern for blood lead. As new information about the effects of lead on the human body are discovered, the level of concern for blood lead has been consistently decreased to protect the public health.

In a follow up study in 1985, testing of 344 children showed 10 still had blood lead levels over 25 µg/dl blood lead surveys have been conducted at least once a year and the testing has been done on a voluntary basis. The following chart summarizes the results of the blood lead level tests.

Elevated Blood Lead Levels in Silver Valley Children During 1983-1988
(Voluntary Testing Program)

Date	Number of Children Tested	Number of Children with BL > or equal to 25 µg/dl
August '83	362	50
August '84	25	9
August '85	344	10
February '86	110	5
August '86	214	3
February '87	104	0
August '87	163	2
August '88	228	7

The Superfund Process

The Bunker Hill site was placed on the National Priorities List (NPL) in December 1982 based on known environmental and health concerns. The NPL is the list of seriously contaminated sites in the nation which require investigation and possible cleanup. The Superfund law allows for funding of some or all of the cleanup by the federal government. However, the parties responsible (PRP's) for the contamination are expected to participate in the cleanup or be responsible for the costs if the government does the work.

The Superfund process addresses contaminated sites through an extensive cleanup program.

Early Superfund Site Investigations

The investigative work performed between 1982 and 1985 showed significant soil and water contamination in the Silver Valley area.

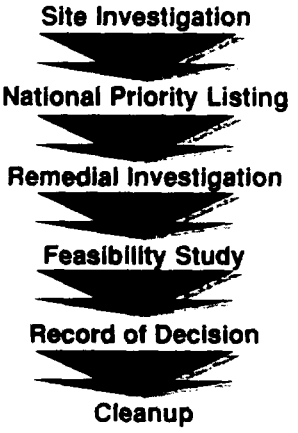
In 1985 several significant events occurred:

1. IDHW contracted with Panhandle Health District, with help from Agency for Toxic Substances and Disease Registry (ATSDR) and Centers for Disease Control (CDC), to implement a community educational/intervention program on the effects of lead in the environment and provide yearly blood lead screenings for the people living within the site boundaries. The educational program focused on ways to prevent further exposure to lead. This program has been partially successful in reducing the number of children with elevated blood lead levels.

2. The Silver Valley Superfund Task Force was formed by county governments to facilitate communication between the agencies involved in the project and the community. This group began meeting in June 1985 and has been a key participant in the Superfund decision making process. The Task Force meetings are open to the public and are held nearly every six to eight weeks.

3. During 1985 a Site Characterization Report was prepared to consolidate all the information known about the site. This information is being used to make decisions throughout the process and to help define areas requiring further investigation. The Site Characterization Report serves as part of step one in the Remedial Investigation (RI).

The Superfund Process



Site Division

Early in the RI federal, state and local government agencies saw a need to divide the project into two parts: the populated area and the non-populated area. Dividing the project into two parts has allowed the cleanup to move along faster in the populated areas. The decision was based on the fact that more information was known about the contamination problems in the populated areas and therefore required less investigation before cleanup could begin. EPA and IDHW are working with contractors to complete the work in the populated areas.

Gulf Resources is investigating the non-populated areas under EPA and IDHW oversight to determine the extent of the contamination. This investigation is called the non-populated areas RI and includes air, soils, surface water, and groundwater sampling.

"Fast Track" - 1986

As part of the populated areas RI, a removal action, called "The Fast Track", was implemented to immediately begin reducing the public health threat from lead contamination. EPA and IDHW, along with local officials, selected 16 public properties to focus on because of high use by children and the exposure to high soil lead levels in these areas. The "Fast Track" action consisted of placing a "barrier" between children and the contaminated soil. Six inches of contaminated soils were removed and replaced with clean soil and sod or gravel. The total cost for the "Fast Track" was about $ 1 Million with $400,000 spent in town where local help was used whenever possible.

Recent Activities

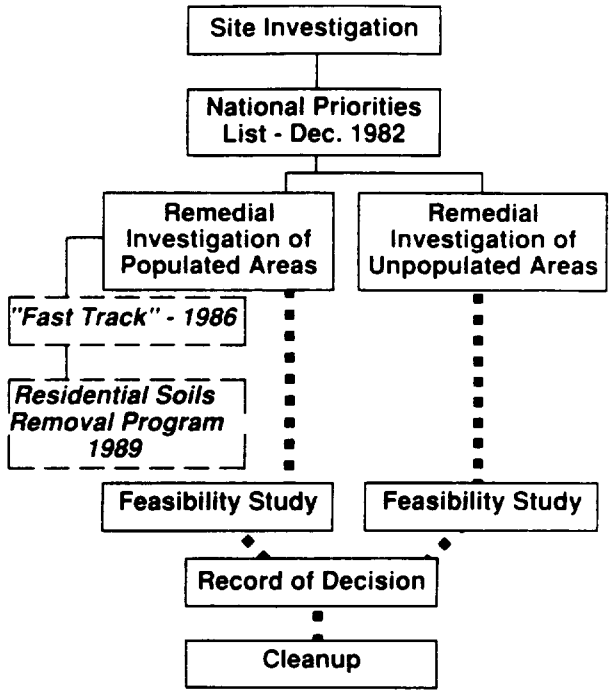
During 1986-87 EPA sampled the soils in the populated areas of Kellogg, Smelterville, Wardner, and Page to determine the level of contamination. Homeowners received the sample results from their yards. At the monthly Task Force meetings, health issues associated with the contamination have become a regular discussion topic.

In the follow up study of 1988, 228 children were tested for elevated blood lead levels. Seven children still showed blood lead levels above the level of concern. Six of these 7 children were three years old or younger. Because children are the most sensitive population and continue to be exposed to lead, new cases are found each year. The 1989 Residential Soils Removal Program is designed to reduce the children's exposure to the contaminated soils.

Summer of 1989 Activities

This summer several activities are being planned at the Bunker Hill Superfund site. Two of these activities are planned for the populated areas. They are the 1989 Residential Soils Removal program and a small scale test to develop a method for cleaning dust from home interiors.

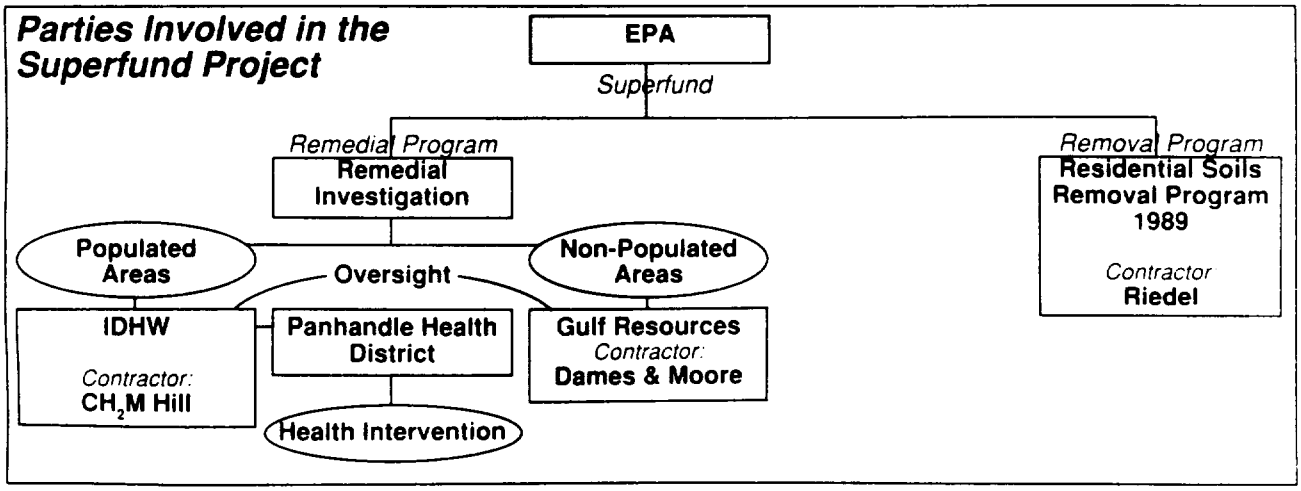
The Superfund Process at Bunker Hill



The Residential Soils Removal program is designed to remove some contaminated soils from yards of homes where children 3 years of age or younger live. Each affected home owner will need to participate in an agreement with EPA to have the work done. Several inches of contaminated soils will be removed. Clean soils and sod or gravel will be installed to provide a barrier between the remaining contamination and the children. After the removal, the yards will be returned to as close to their original condition as possible. This program is a removal action and will be going on this summer while the Remedial Investigations continue.

The third activity will take place in both the populated and non-populated areas. This will be an on-going program to better control of blowing dust in the area.

Parties Involved in the Superfund Project



Upcoming Activities

Gulf's non-populated area RI is nearly finished and the data gathered is being evaluated. This is expected to take about one year with the draft report due in April 1990. The next step is the development of various cleanup alternatives at the site. This part of the process is called the Feasibility Study (FS) and is expected to be completed in August 1992.

The Superfund law also provides ways to conduct early cleanup activities prior to the completion of the RI FS. The "Fast Track" and the 1989 Residential Soils Removal Program are examples of these early activities. Given the information gathered on the site to date, it may also be possible to begin early cleanup of other areas of the site. During the summer of 1989 the possibility of negotiations with the potentially responsible parties will be explored. If successful, it could lead to privately-funded early cleanups on other areas of the site.

Want More Information?

There are several ways to get more information about the site. To read about the site, the information repositories listed below provide the complete record of the site including information about lead and its health affects.

The information repositories are located at:

Kellogg City Hall	Kellogg Library
Pinehurst City Hall	Smelterville City Hall

Members of the community who serve on the Superfund Task Force are available to talk with you about the site and the activities going on. The members are:

Duane Little	Deb Hoffman	Wayne Benson
Bill Lytle	Terry Douglas	Gary Beck
Eric Lassfolk	Bill Zanetti	

EPA, IDHW, and the Task Force hold frequent public information meetings. Announcements of these meeting can be found in the local newspapers or by contacting the EPA/IDHW Superfund Project Office in Kellogg at 783-5781 or the Panhandle Health District Office at 752-1235.

Agency Contacts are:

U.S. Environmental Protection Agency
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1200 Sixth Avenue HW-113
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